



SEEA
SOUTHEAST ENERGY EFFICIENCY ALLIANCE

Electric Transportation Trends and Opportunities

Briefing to the South Carolina Public Service Commission
November 7, 2019

The Southeast Efficient Energy Alliance (SEEA) promotes energy efficiency as a catalyst for economic growth, workforce development and energy security across 11 southeastern states including Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia.

Areas of Work



Energy Efficiency
Policy



Built
Environment



Energy Efficient
Transportation



Regional
Investments

SEEA'S ET GOALS & OBJECTIVES



Goal: Expand energy efficient transportation policies and program in the Southeast

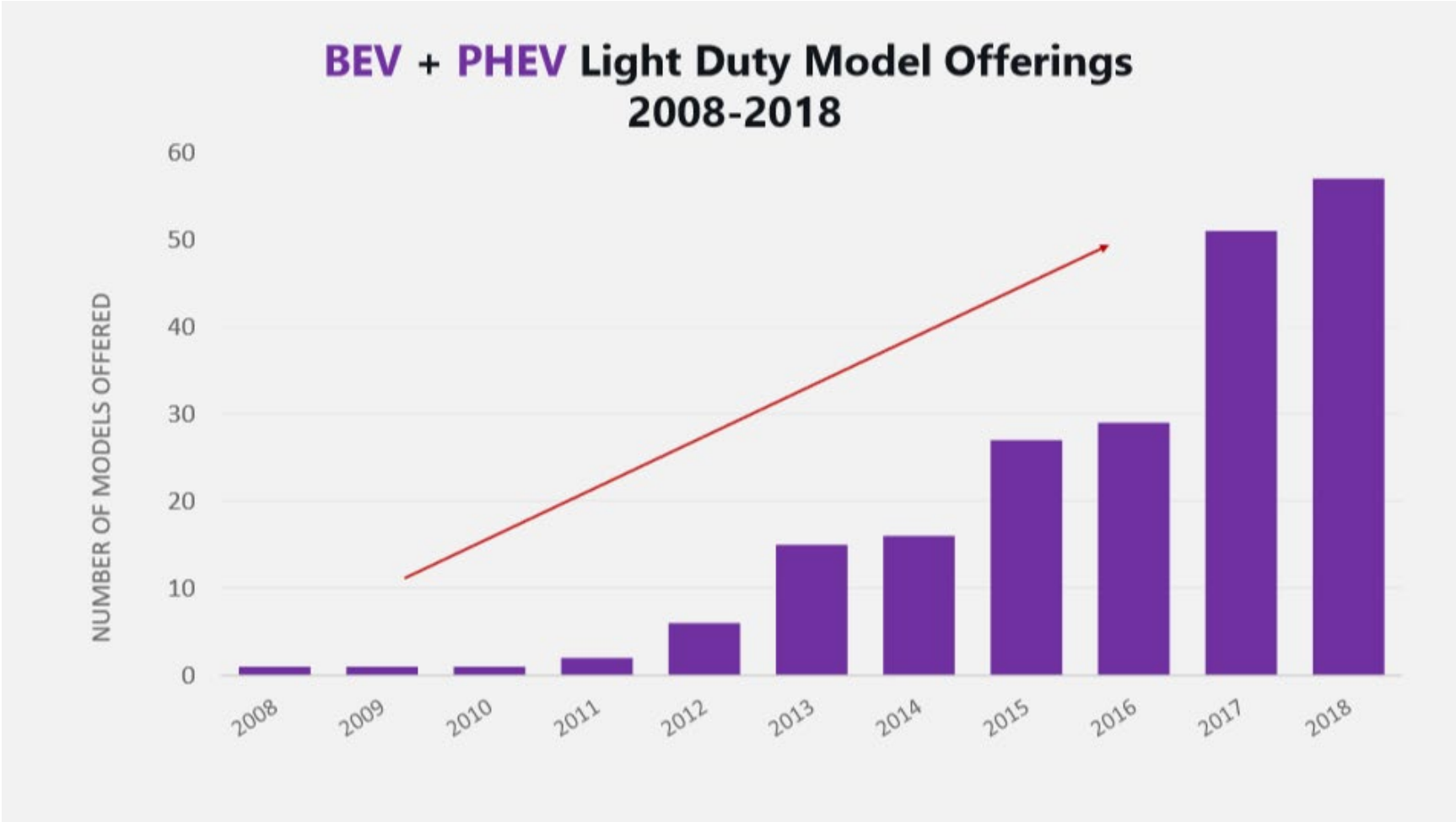
- 1) Serve as a resource for stakeholders on EET information in the Southeast.
- 2) Support state policy makers, state agencies & utilities to develop policy and program models that advance EET in their states and territories
- 3) Cultivate state-based leaders to collaboratively advance in-state EET objectives.
- 4) Support increased consumer awareness on EET.

ELECTRIC VEHICLES (EVs)

- Two basic kinds of EVs:
 - Battery electric vehicles (BEVs) that run exclusively on electricity, and plug-in hybrid electric vehicles
 - (PHEVs) that can run on electricity for a limited distance before switching to gas/electric hybrid mode.
- Increasing number of EVs – just 6 models available in 2011. More than 50 models available today
- A [2019 survey](#), conducted by Consumer Reports shows that 63 percent of prospective car buyers in America are interested in electric vehicles



TRENDS IN TRANSPORTATION ELECTRIFICATION

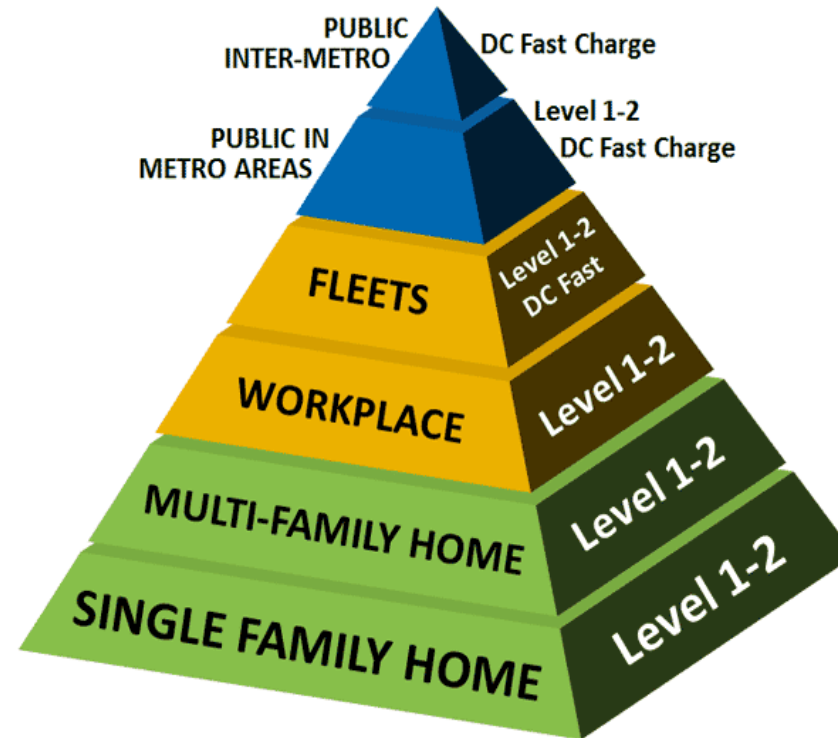


HEAVY-DUTY ELECTRIC TRANSPORTATION

- Electric School & Transit Buses
 - Proterra
 - New Flyer
 - BYD
 - Blue Bird
 - more
- Garbage Trucks
 - BYD- 76 miles/2-3 hrs charge
- Long Haul Trucks
 - Daimler Trucks
 - Tesla
- Delivery Trucks
 - Workhorse



UNDERSTANDING CHARGING



STATE OF THE INDUSTRY

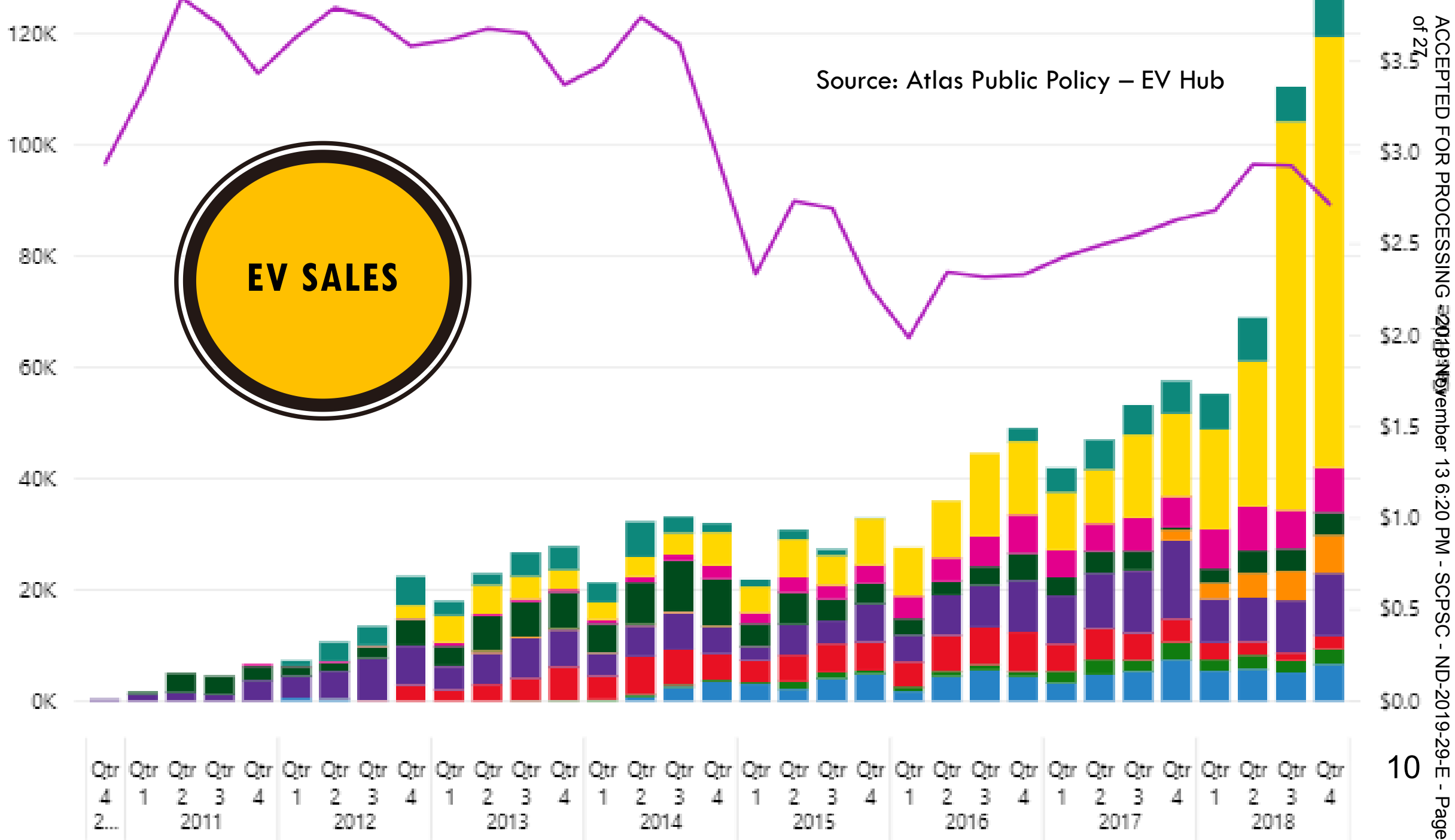


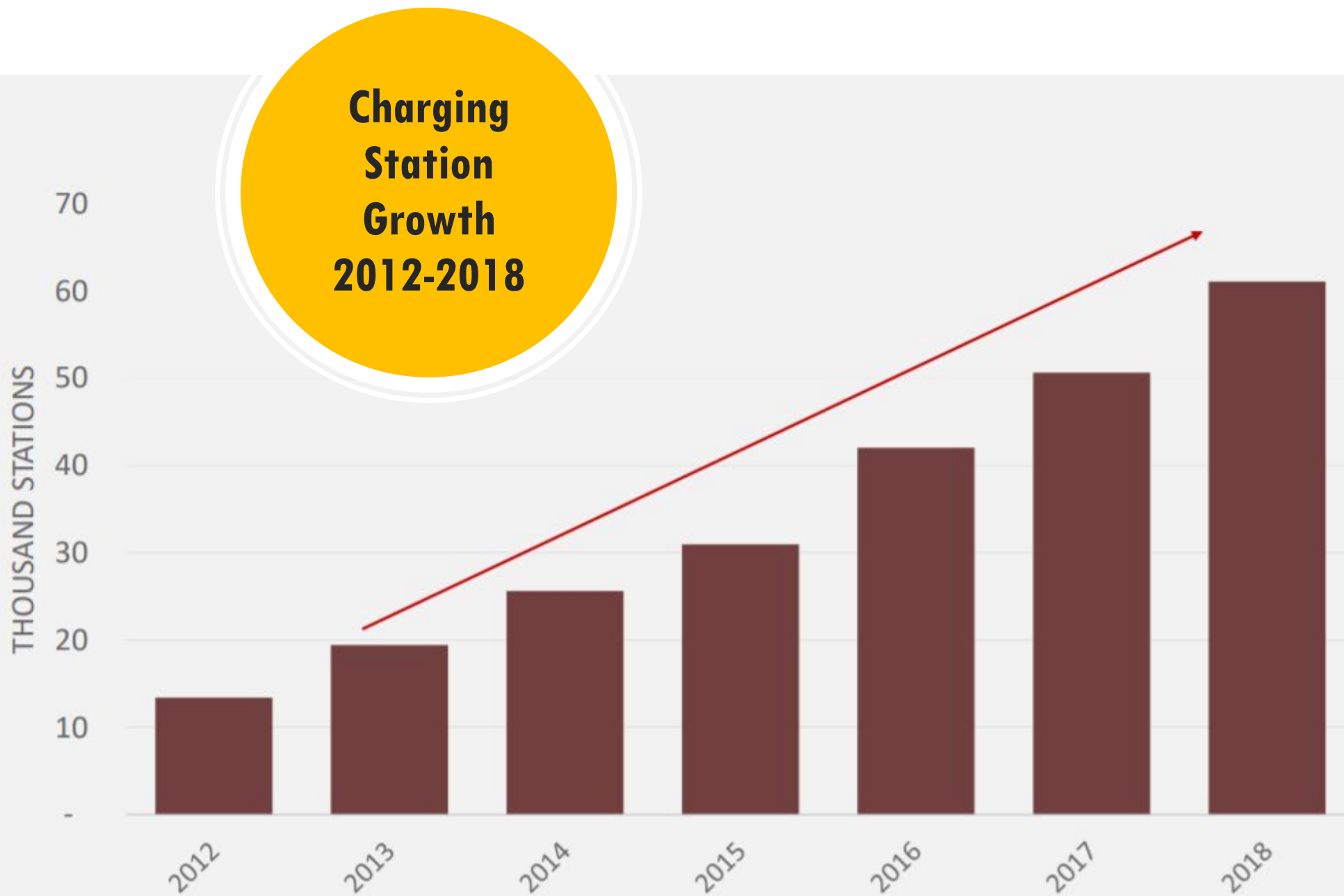
- **Over One Million Vehicles in the U.S.**
- **Major Charging Company Acquisitions by Oil Industry**
- **New electric vehicle models introduced**
- **Manufacturer commitments — All or partially electric**
- **Over \$1 Billion in utility EV programs**
- **Major Medium and Heavy-Duty Vehicle models announced**
- **Major Fleet Commitments to Electrification**

EV Sales

EV SALES

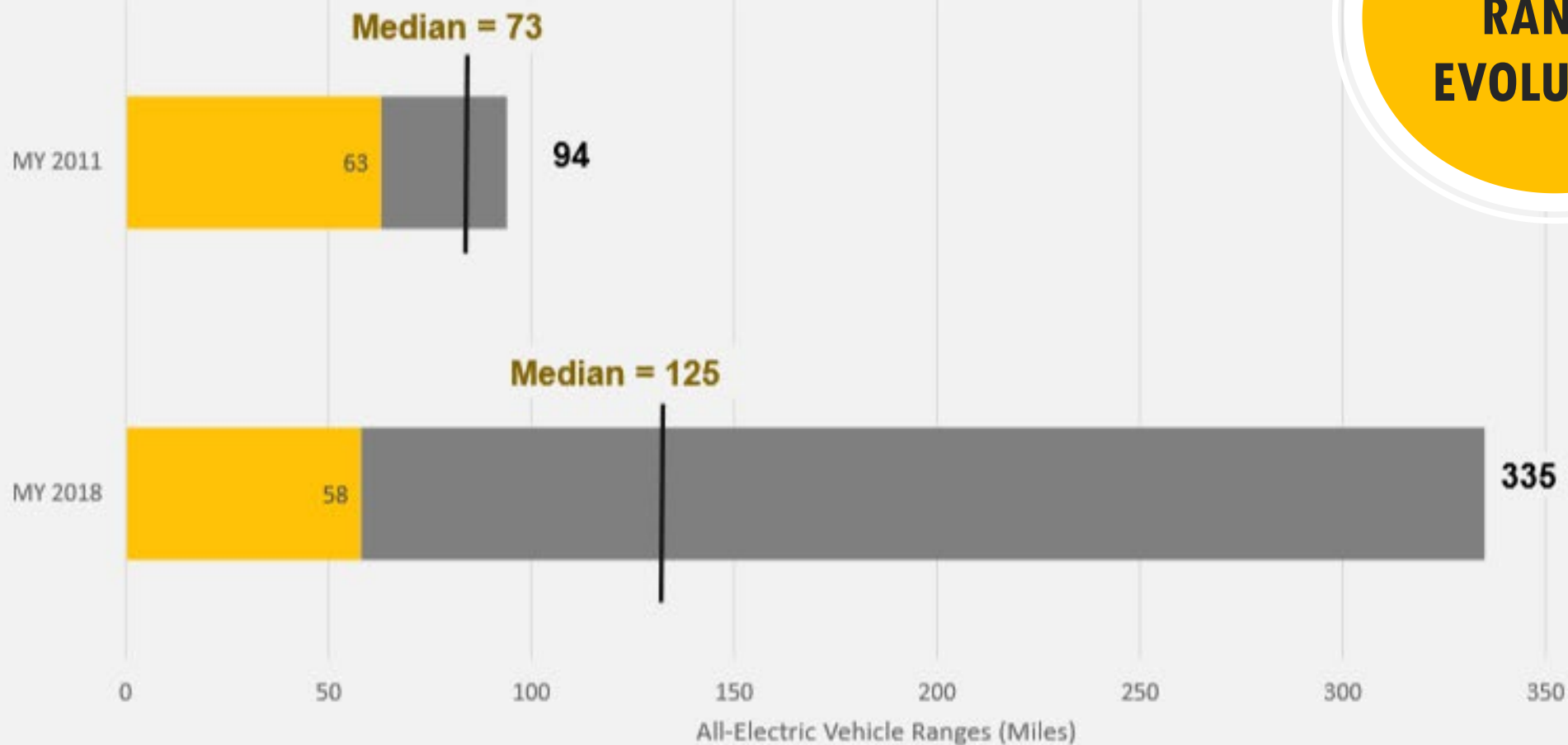
Source: Atlas Public Policy – EV Hub





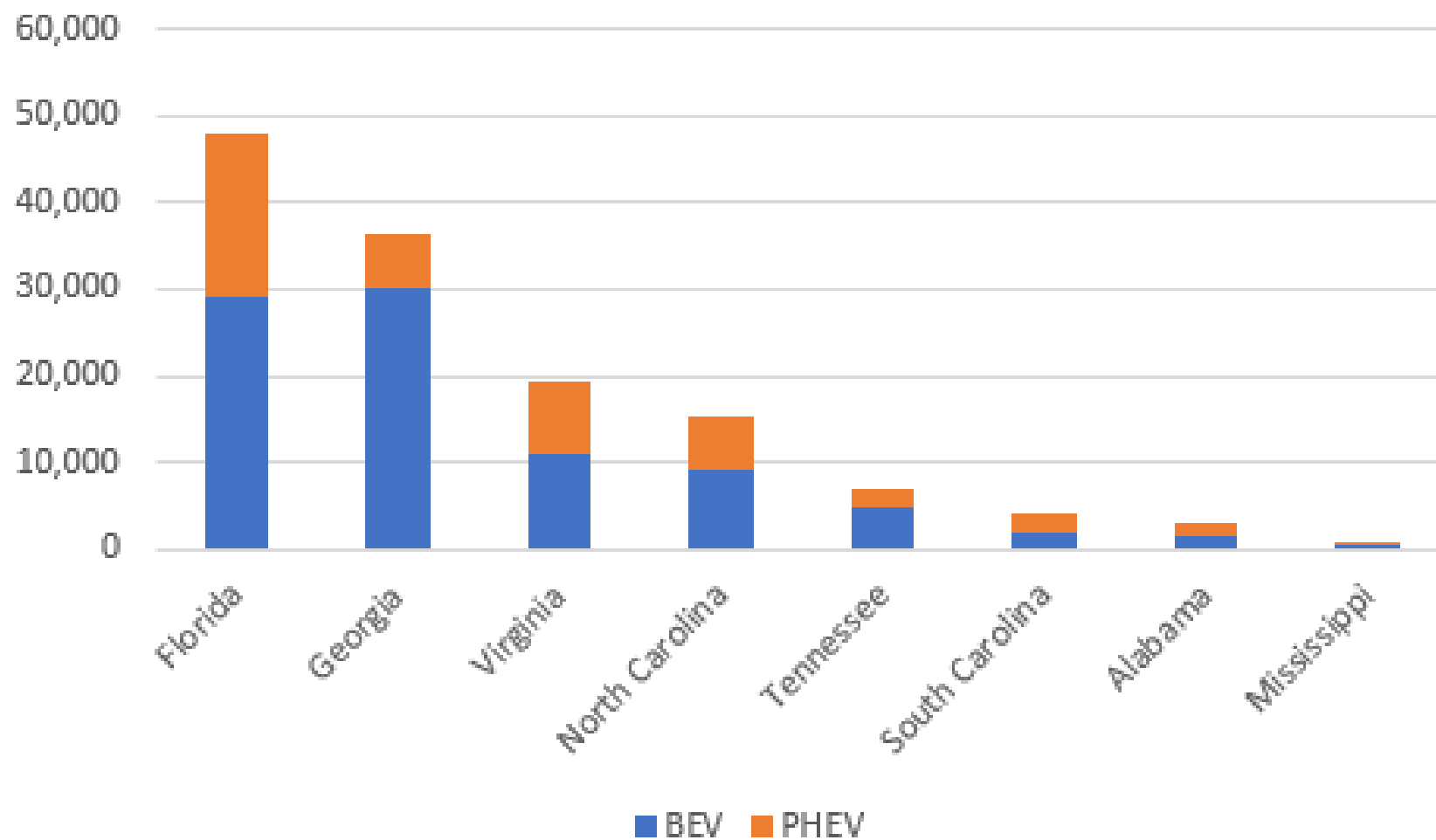
Median BEV Range

Breadth of AEV Ranges, MY 2011 and 2018

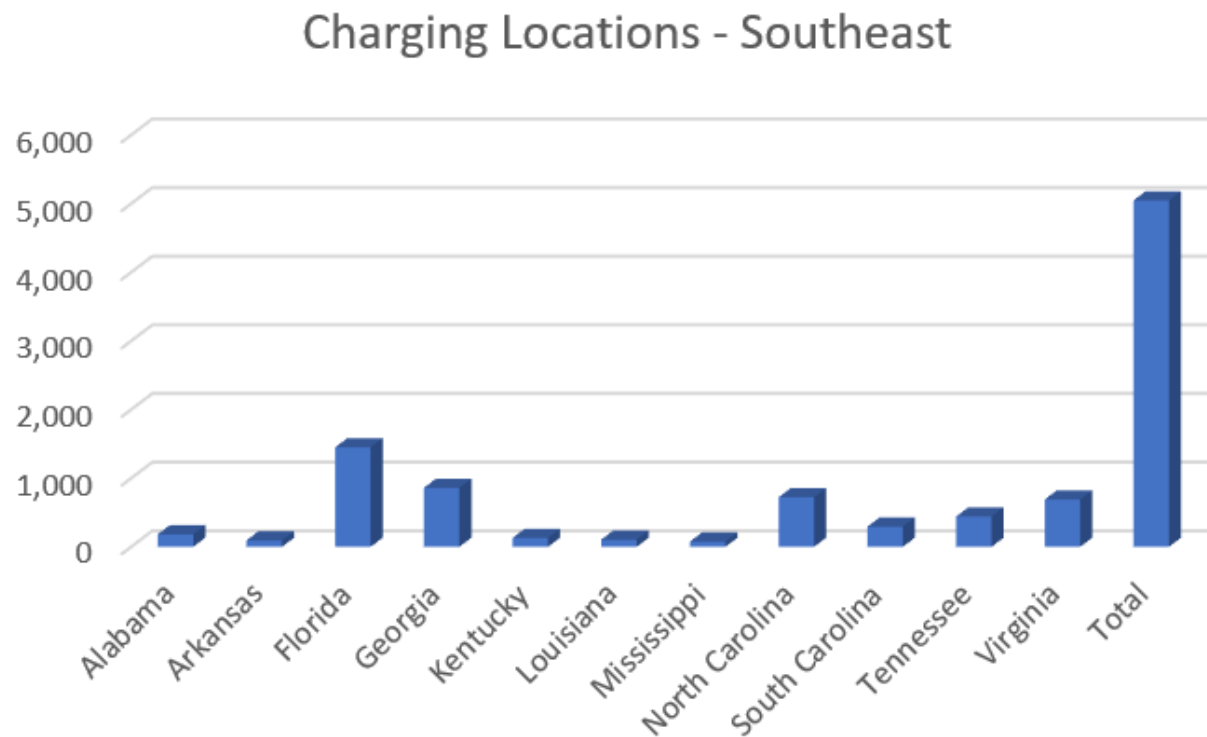


**VEHICLE
RANGE
EVOLUTION**

SOUTHEAST EV — CUMULATIVE EV SALES

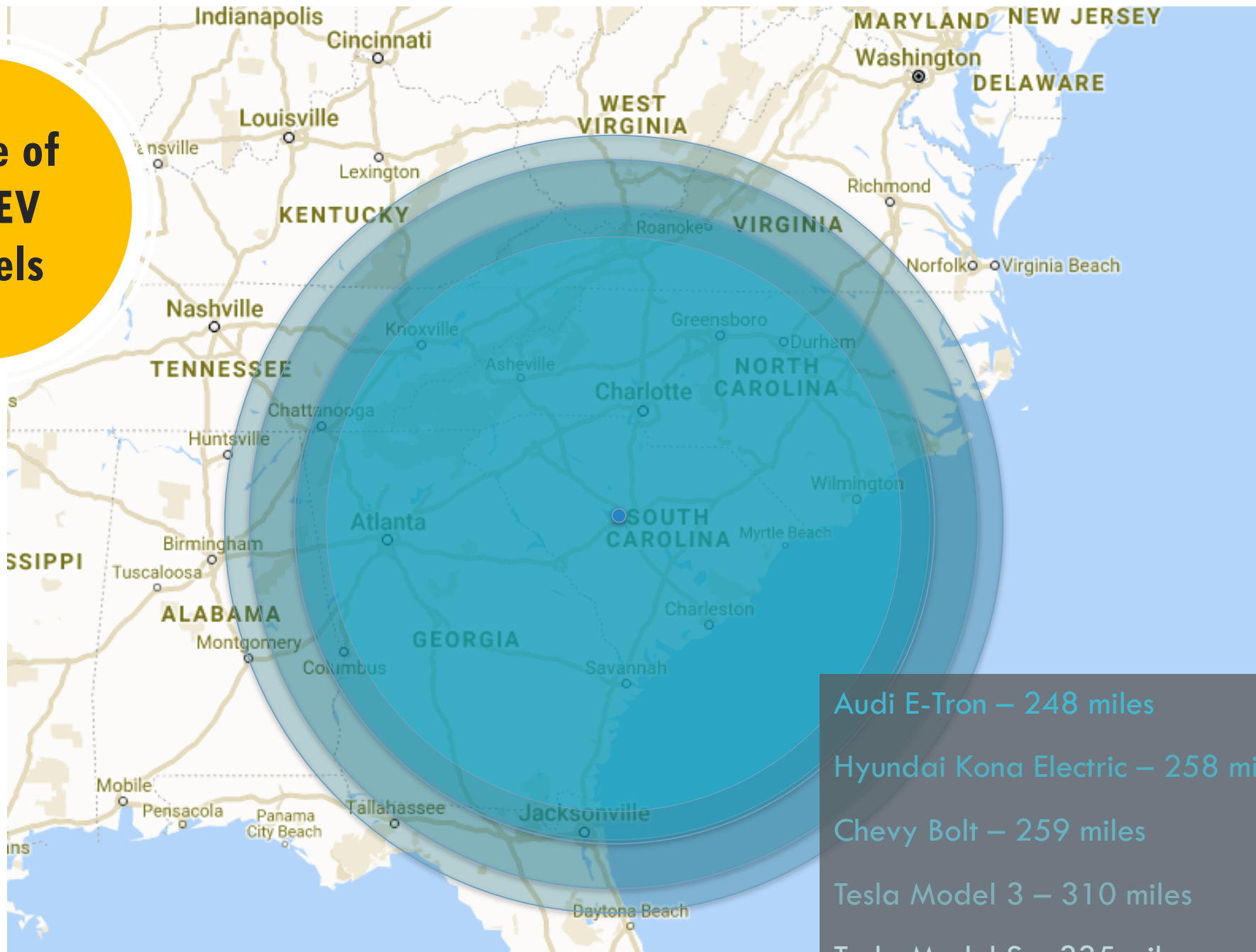


CHARGING INFRASTRUCTURE IN THE SOUTHEAST

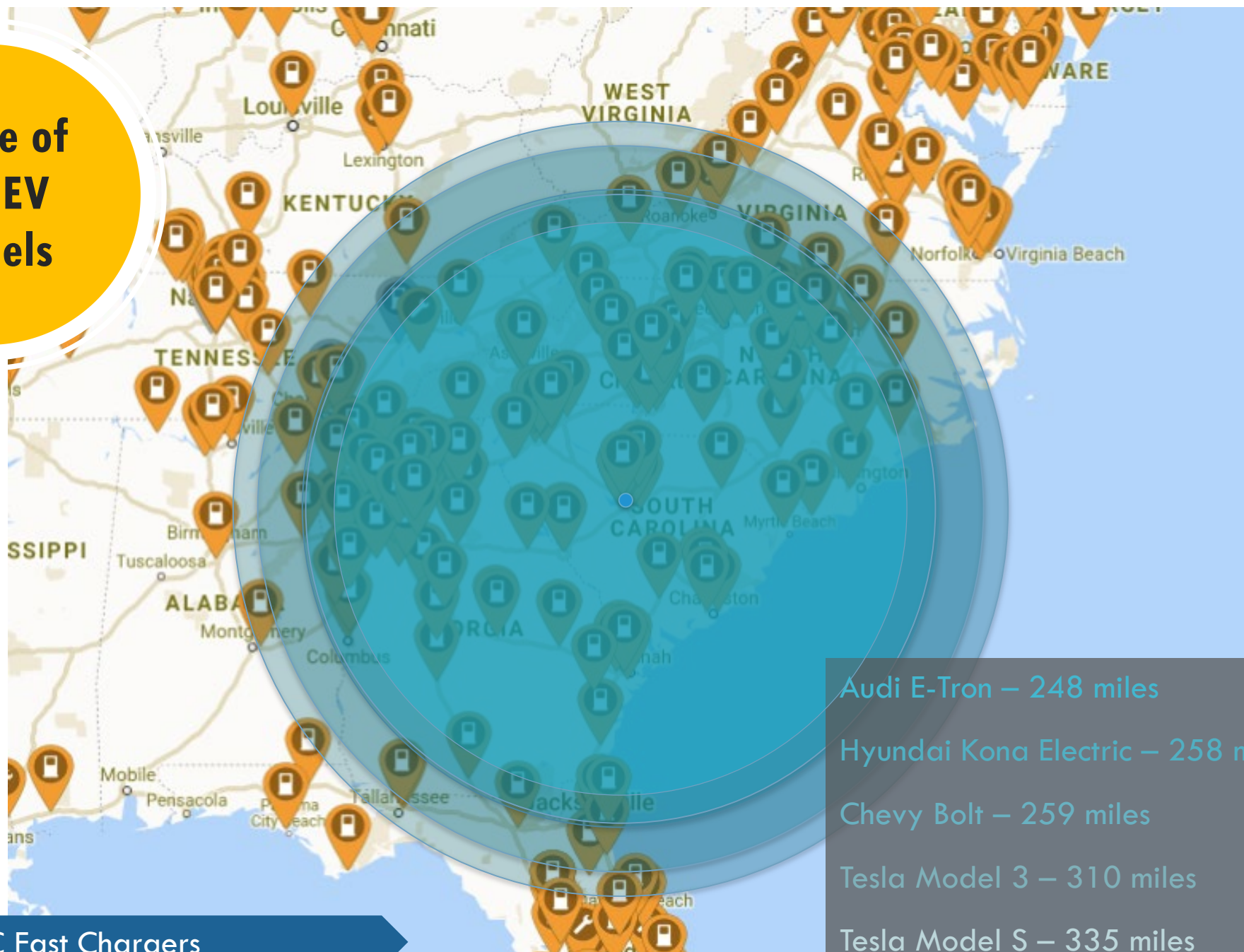


STATE	NUMBER OF PORTS	NUMBER OF LOCATIONS
Alabama	391	183
Arkansas	232	94
Florida	3788	1450
Georgia	2469	859
Kentucky	270	130
Louisiana	226	105
Mississippi	183	77
North Carolina	1722	723
South Carolina	616	294
Tennessee	1080	441
Virginia	1676	690
Total	12,653	5,046

Range of Top EV Models

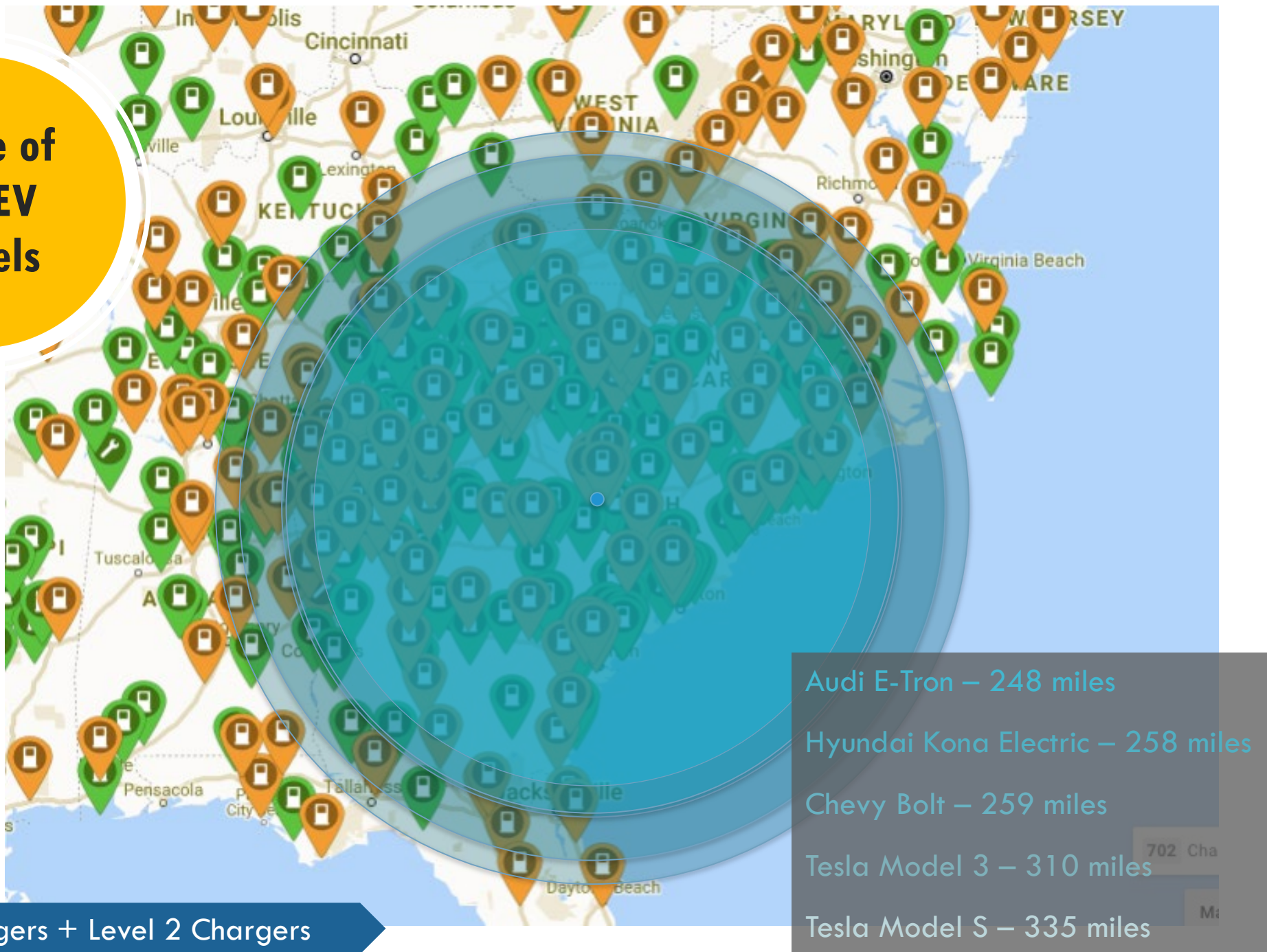


Range of Top EV Models



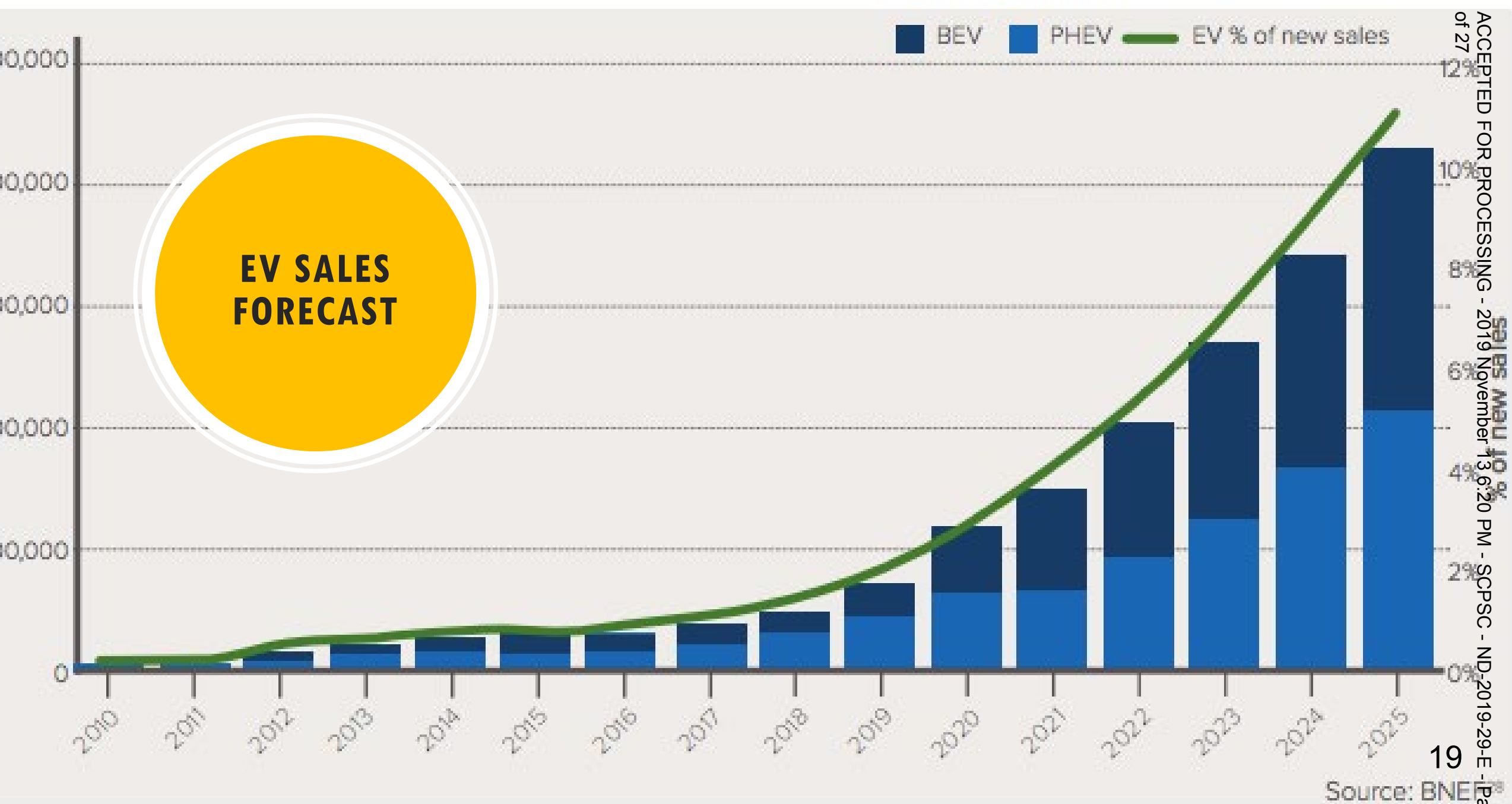
DC Fast Chargers

Range of Top EV Models



SEAMLESS CHARGING EXPERIENCE PRINCIPLES

1. Access to a robust network of public charging stations.
2. The ability to charge at the place of dwelling.
3. Electricity rates that encourage adoption of EVs.
4. Knowing where the station is: up-to-date maps and directional signage.
5. Consistent etiquette guidelines: improperly parked vehicles, complaints, parking rules.
6. A standard method of payment for consumers.
7. Stations that abide by interoperability billing standards.
8. Knowing the total cost to charge before initiating the charge session.
9. Knowing the maximum charge rate (kW) at the station.
10. Knowing the operational status of the station.



EV POLICY TRENDS

Charging Incentives

- Virginia
- Georgia
- Alabama

EV Charging Rates

- Virginia
- North Carolina
- Georgia

State Fleet Incentives

- Virginia

State vehicle incentives

- Georgia (Repealed)

ZEV adoption

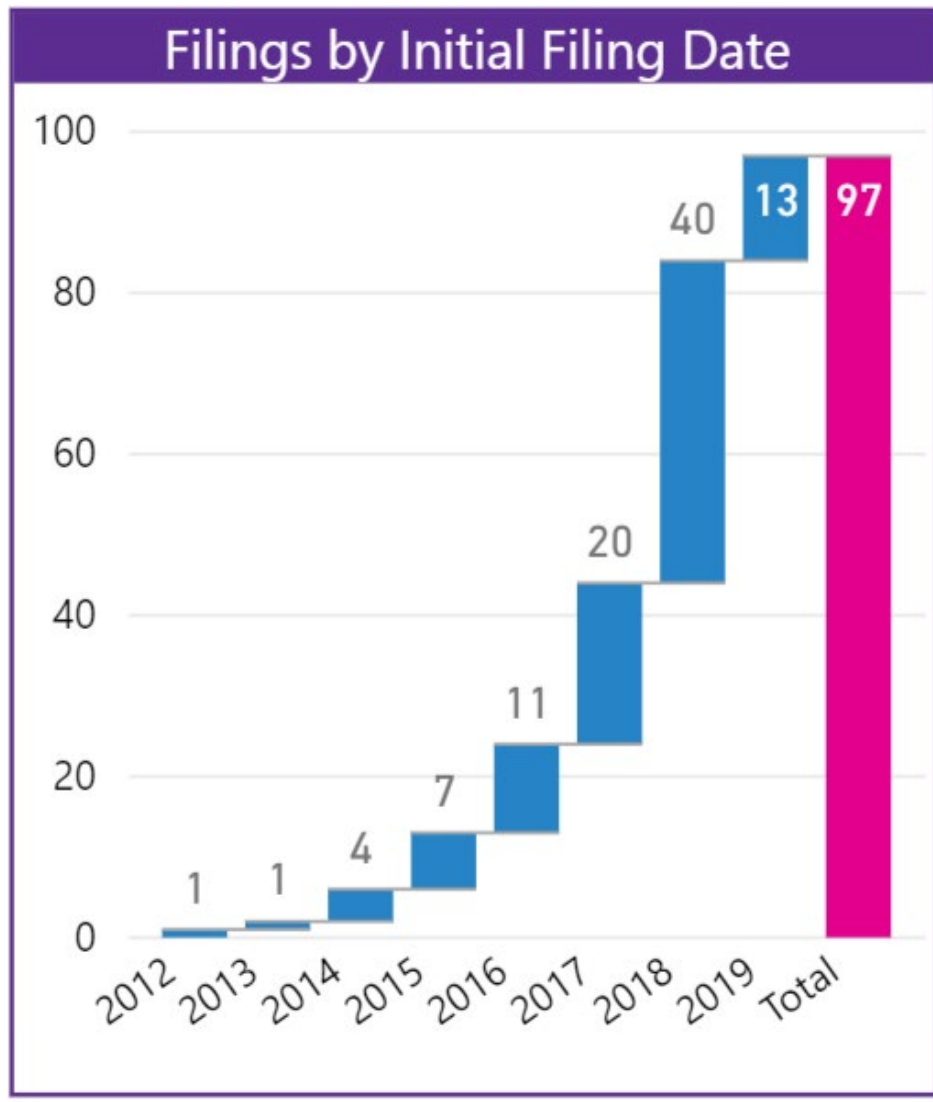
- No SE States

Charging Infrastructure Planning and Deployment

- Multiple states and municipalities

Consumer Awareness Programs

- Multiple municipalities, utilities, and others



UTILITY FILINGS 2012-2019

UTILITY FILINGS

65 Approved

- 23 States
- \$1.2 Billion Investment
- 41 Utilities
- 2,346 DCFC
- > 45K Level 2 Charging Stations

32 Filed

- 21 States
- \$1.5 Billion Investment
- 26 Utilities
- 910 DCFC
- >123K Level 2 Charging Stations

25 Denied or Withdrawn

- 15 States
- \$256 Million Investment
- 20 Utilities
- 132 DCFC
- 65K Level 2 Charging Stations

UTILITY EV FILING/COMMISSION ENGAGEMENT

Xcel Energy - Minnesota

- Commission required utilities to file detailed plans for how the utility will raise public awareness and charging infrastructure and how it will encourage charging infrastructure and expand fleet electrification

Duke Energy Carolinas/Progress

- \$76 million - pending
- Residential
- Multi-family
- DCFC
- V2G School Bus Pilot

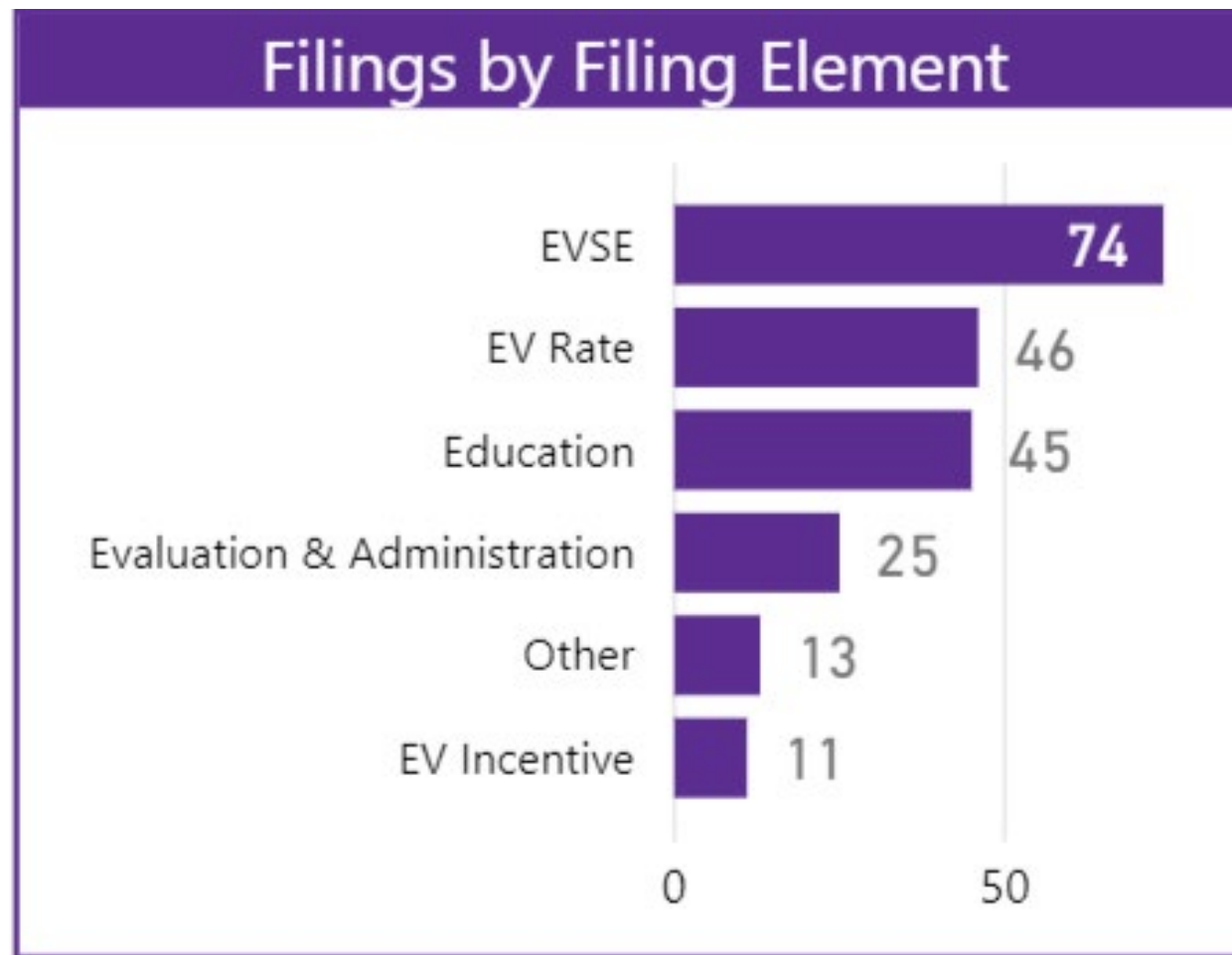
Michigan

- Commision hosted two technical conferences with industry, manufacturers
- Develop a workplan to guide charging networks and clarify the impact of ratepayers of utility investments
- Recommended that utilities file EV pilots in rate cases and include: education, infrastructure deployment, grid impacts and rate design

Maryland

- Commission opened docket to engage stakeholders
- 4 proposals from utilities
- Issued order authorized 5K charging stations, managed charging demonstration
- Semi-annual reporting requirement

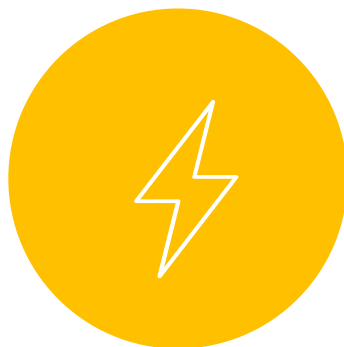
COMPONENTS OF UTILITY FILINGS



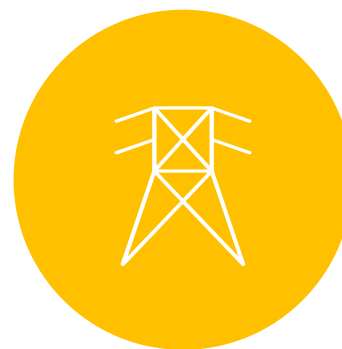
BENEFITS OF UTILITY EV PROGRAMS



DOWNWARD
PRESSURE ON RATES



PEAK SHAVING



GRID RESILIENCE

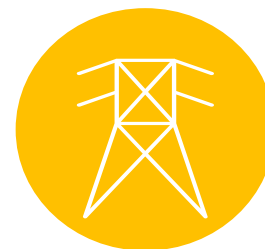


SERVING
RATEPAYERS AND
NON RATEPAYERS



CONNECTING
ENERGY SERVICES

UTILITY ROLE



- NEED MULTIPLE PARTIES – UTILITIES AND PRIVATE INDUSTRY TO MEET CHARGING NEEDS
- UTILITIES CAN BUILD AT SCALE, REDUCED INSTALLATION COSTS, HAVE ACCESS TO LOW-COST CAPITAL, AND HAVE EXISTING EXPERTISE IN INSTALLATION AND MAINTENANCE (DRIVERS NEED DEPENDABLE CHARGING)
- UTILITIES CAN BETTER HELP PLAN AND INTEGRATE LOAD & MINIMIZE GRID IMPACTS
- ABLE TO MEET THE NEEDS OF ALL CUSTOMERS
- BETTER GRID MONITORING AND DISTRIBUTION PLANNING

THANK YOU!

